CLAIMS

What is claimed is:

1. A fusing roller of an image forming apparatus comprising:

an outer metallic pipe;

an inner metallic pipe disposed inside the outer metallic pipe;

a resistance heating body disposed between the outer and the inner metallic pipes, generating a resistance heat ;

an outer insulator interposed between the resistance heating body and the outer metallic pipe to transmit the resistance heat to the outer metallic pipe ; and

an inner insulator disposed between the resistance heating body and the inner metallic pipe, wherein the outer insulator has a higher thermal conductivity than that of the inner insulator.

2. The fusing roller of the image forming apparatus of claim 1, wherein the outer insulator comprises a first insulating sheet and a second insulating sheet that are layered from an outer side of the resistance heating body with a predetermined thickness.

3. The fusing roller of the image forming apparatus of claim 2, wherein the first and the second insulating sheets are MICA sheets comprised of an artificial MICA and a silicone adhesive.

4. The fusing roller of the image forming apparatus of claim 2, wherein the first and the second insulating sheets are formed with approximately the same thickness.

5. The fusing roller of the image forming apparatus of claim 2, wherein the outer insulator further includes a resin film between the second insulating sheet and the outer metallic pipe.

6. The fusing roller of the image forming apparatus of claim 5, wherein the resin film is a heat resisting polyimide film.

7. The fusing roller of the image forming apparatus of claim 5, wherein the resin film is thinner than the first and the second insulating sheets.

8. The fusing roller of the image forming apparatus of claim 5, wherein the resin film is approximately 25μm in thickness.

9. The fusing roller of the image forming apparatus of claim 1, wherein the inner insulator includes a first insulating sheet, a second insulating sheet, and a third insulating sheet that are consecutively layered from the resistance heating body toward the inner metallic pipe with a predetermined thickness.

10. The fusing roller of the image forming apparatus of claim 9, wherein the first, the second, and the third insulating sheets are mica sheets that have approximately the same thickness.

11. The fusing roller of the image forming apparatus of claim 9, wherein the first, the second, and the third insulating sheets are respectively thicker than the resistance heating body.

12. The fusing roller of the image forming apparatus of claim 5, wherein the inner insulator includes a third insulating sheet, a fourth insulating sheet, and a fifth insulating sheet that are consecutively layered from the resistance heating body toward the inner metallic pipe.

13. The fusing roller of the image forming apparatus of claim 12, wherein the third, the fourth, and the fifth insulating sheets are respectively 0.1mm to 0.2mm in thickness and have a withstand voltage of 3.0kV or greater.

14. The fusing roller of the image forming apparatus of claim 5, wherein the first and the second insulating sheets are respectively 0.1mm to 0.2mm in thickness and have a withstand voltage of 3.0kV or greater, and the resin film has a thickness of approximately 25μm

15. The fusing roller of the image forming apparatus of claim 1, wherein the outer metallic pipe is coated with a synthetic resin so that a coating layer is formed around an outer circumference of the outer metallic pipe.

16. The fusing roller of the image forming apparatus of claim 15, wherein the coating layer is made of TEFLON.

17. The fusing roller of the image forming apparatus of claim 15, wherein the outer metallic pipe is approximately 1.0mm in thickness, and the coating layer is approximately 30μm in thickness.

18. The fusing roller of the image forming apparatus of claim 2, further comprising a thermally conductive material disposed between the first and the second insulating sheets .

19. The fusing roller of the image forming apparatus of claim 18, wherein the thermally conductive material is a thermal grease.

20. The fusing roller of the image forming apparatus of claim 9, further comprising a thermally conductive material disposed between the first, the second, and the third insulating sheets .

21. The fusing roller of the image forming apparatus of claim 20, wherein the thermally conductive material is a thermal grease.

22. The fusing roller of the image forming apparatus of claim 1, further comprising an end cap and a gear cap respectively connected to both ends of the outer metallic pipe and electrically connected to the resistance heating body.

23. The fusing roller of the image forming apparatus of claim 22, wherein at least one of the end cap and gear cap is provided with a terminal supplying an AC voltage to the resistance heating body.

24. The fusing roller of the image forming apparatus of claim 22, further comprising an air vent in the end cap, preventing an expansion of the inner metallic pipe due to air pressure in the inner metallic pipe.

25. The fusing roller of the image forming apparatus of claim 1, further comprising a resin film between the outer insulator and the outer metallic pipe.

26. The fusing roller of the image forming apparatus of claim 25, wherein the resin film is a heat resisting polyimide film.

27. The fusing roller of the image forming apparatus of claim 1, wherein at least one of the outer and inner metallic pipes is further comprised of aluminum.

28. The fusing roller of the image forming apparatus of claim 1, wherein the thickness of the inner metallic pipe is approximately half the thickness of the outer metallic pipe.

29. The fusing roller of the image forming apparatus of claim 1, wherein the resistance heating body is comprised of either a nickel-chrome or a ferro-chrome.

30. The fusing roller of the image forming apparatus of claim 1, wherein the resistance heating body is approximately 0.1mm in thickness.

31. A fusing roller of an image forming apparatus comprising:

an outer metallic pipe;

an inner metallic pipe disposed inside the outer metallic pipe;

a resistance heating body disposed between the outer and the inner metallic pipes, generating a resistance heat;

an outer insulator interposed between the resistance heating body and the outer metallic pipe to transmit the resistance heat to the outer metallic pipe; and

an inner insulator disposed between the resistance heating body and the inner metallic pipe, wherein the inner insulator is thicker than the outer insulator.

32. The fusing roller of the image forming apparatus of claim 31, wherein the outer insulator comprises a first insulating sheet and a second insulating sheet that are layered from an outer side of the resistance heating body with a predetermined thickness.

33. The fusing roller of the image forming apparatus of claim 31, further comprising a resin film between the outer insulator and the outer metallic pipe.

34. The fusing roller of the image forming apparatus of claim 31, wherein the inner insulator includes a first insulating sheet, a second insulating sheet, and a third insulating sheet that are consecutively layered from the resistance heating body toward the inner metallic pipe with a predetermined thickness.

35. The fusing roller of the image forming apparatus of claim 31, wherein the outer metallic pipe is coated with a synthetic resin so that a coating layer is formed around an outer circumference of the outer metallic pipe.

36. The fusing roller of the image forming apparatus of claim 31, further comprising an end cap and a gear cap respectively connected to both ends of the outer metallic pipe and electrically connected to the resistance heating body.

37. The fusing roller of the image forming apparatus of claim 31, wherein the thickness of the inner metallic pipe is approximately half the thickness of the outer metallic pipe.

38. The fusing roller of the image forming apparatus of claim 31, wherein the resistance heating body is approximately 0.1mm in thickness.